

FRESH-WATER SPONGES IN THE COLLECTION OF THE UNITED STATES NATIONAL MUSEUM.—PART IV. NOTE ON THE FRESH-WATER SPONGE, *EPHYDATIA JAPONICA*, AND ITS ALLIES.

By, NELSON ANNANDALE,

Superintendent of the Indian Museum, Calcutta.

Among the specimens of fresh-water sponges recently sent me by the U. S. National Museum for examination is one of considerable interest from the point of view of geographical distribution. Taken in the Eastern Branch of the Potomac River near Washington, District of Columbia, it evidently represents Hilgendorf's *Spongilla fluviatilis*, var. *japonica*, which, as I have recently pointed out, deserves to rank as a distinct species.

Ephydatia japonica may be distinguished from the *E. fluviatilis* of recent authors by the shortness of its birotulates, which are never much longer than the diameter of their rotules, and by the fact that the indentations on the edge of the rotules are much deeper. From *E. mülleri* (Lieberkühn) it may be distinguished by the smoothness of its skeleton spicules, and from *E. meyeri* (Carter) by the shortness of its birotulates and by the fact that they never form more than a single layer on the gemmule. The following key will demonstrate the most conspicuous characters of these four closely allied species, which are often confused:

- I. Skeleton spicules smooth.
 - A. Shafts of birotulates much longer than diameter of rotules; rotules not deeply indented; no vesicular cells in the parenchyma.....*E. fluviatilis*.
 - B. Shafts of birotulates much longer than diameter of rotules; rotules deeply indented; vesicular cells abundant in the parenchyma.....*E. meyeri*.
 - C. Shafts of birotulates not, or at most slightly, longer than diameter of rotules; rotules deeply indented; (?) vesicular cells.....*E. japonica*.
- II. Skeleton spicules conspicuously roughened (except at the tips).

Shafts of birotulates not, or barely, longer than diameter of rotules; rotules deeply indented; vesicular cells abundant in the parenchyma.....*E. mülleri*.

E. fluviatilis occurs all over Europe and North America, in Siberia, Japan, the Malay Archipelago, and Australia; *E. mülleri* all over

North America and Europe and in Japan; *E. meyeri* all over peninsular India from Bombay to Cape Comorin and Calcutta; *E. japonica* not only in Japan but also, as we have seen, in North America.

Unfortunately, none of the specimens of *E. japonica* I have examined are in a sufficiently good state of preservation for me to be able to express an opinion as to whether vesicular cells are present or not. Probably they are not present, for Doctor Weltner, who has examined the type-specimens, regards the form as a variety of *E. fluviatilis*.

The following is the synonymy of *E. japonica*, so far as we know it:

1882. *Spongilla fluviatilis*, var. *japonica* HILGENDORF, Sitzungsber. Ges. Naturf. Freunde, Berlin, p. 26.
1895. *Ephydatia fluviatilis*, var. *japonica* WELTNER, Archiv f. Naturg., vol. 1, pp. 123, 134.
1909. *Ephydatia japonica* ANNANDALE, Annot. Zool. Japon., vol. 7, pt. 2, p. 109, pl. 2, figs. 3, 3a, 3b.